APPENDIX B

CAUSEWAY SYSTEMS

INTRODUCTION

Causeway use is relatively unchanged from its beginning in World War II. Although numerous changes in design and operation have occurred, its extension of land is still the causeway mission basis.

Transportability of causeway equipment, until recently, proved a major disadvantage for US Army use and operation. The Navy lighter series of causeway sections measures 6.4 meters by 27.5 meters and weighs 68 metric tons. Specially adapted US Navy vessels transport the sections by fitting the longitudinal edge of the section into their hull. The section is then hoisted just past vertical and secured using standing rigging. This side loading technique, though operationally effective, requires a significant investment in designed ship assets.

The US Army modular causeway section (MCS) overcomes transportation restrictions through its International Organization for Standardization (ISO) container compatible design. The MCS is (end to end) compatible with the Navy lighter causeway section. The MCS is ocean transported by (commercial or military) deck loading or closed cell containership. Once on deployment station the MCSs are connected end to end and side to side to form one of three causeway systems: the floating causeway (FC), RO/RO discharge facility (RRDF), and the CF.

OPERATIONAL CONSIDERATIONS

The maximum operating sea condition is sea state three. However, throughput capacity suffers greatly after sea state two. Conditions below sea state one are required for assembly and installation of a causeway system. Each crew shift is eight hours. Two hours during each shift is used for preventive maintenance checks and service (PMCS) and refuel requirements.

Causeway sections are very seaworthy but are prone to hull punctures. Most punctures do not render the section unserviceable during the operation with the exception of the causeway powered unit. The stern portion of this section contains the fuel and engines. Due to the freeboard and lack of watertight integrity, the powered sections are potential casualties of water damage or sinking. Adequate safeguards must be in place before beginning an operation. These safeguards include: a severe weather safe haven plan, operating in appropriate sea conditions, and operating the craft within design parameters.

FLOATING CAUSEWAY (FC)

The floating causeway (FC), sometimes referred to as the admin pier, provides a floating pier up to 229 meters long. The FC allows discharge of rolling stock and containers by forward ramp vessels. The FC is required when the beach gradient does not allow for discharge lighterage beach landings. Newly introduced, larger watercraft (LCU 2000 class and LSVs) all but necessitate the operation of a FC for logistics over-the-shore operations.

ROLL ON/ROLL OFF DISCHARGE FACILITY (RRDF)

The RRDF provides an open ocean interface between ocean-going vessels and vessels whose draft and design allows for beach or FC operations. A RRDF is required if port facilities are not available and/or not adequate to meet supply/resupply needs. The RRDF is designed to provide service to self-sustaining and nonself-sustaining commercial and military RO/RO vessels. Servicing nonself-sustaining vessels requires one foot or less of wave height.

CAUSEWAY FERRY (CF)

The CF provides a causeway asset interface between the RRDF and the beach. The CF is the lighterage of choice for integrating the RRDF to beach operations. The CF is required if other beach capable vessels are not available. The CF can be configured to support lift on/lift off container operations. Only with the heaviest track vehicles does the weight capacity exceed available deck space.